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60/175,481 11 January 2000 (11.01.2000) US
PCT/US00/04341 18 February 2000 (18.02.2000) US
PCT/US00/04342 18 February 2000 (18.02.2000) US
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[Continued on next page]

(54) Title: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC ACIDS ENCODING THE SAME

<subunit 1 of 1, 266 aa, 1 stop
<MW: 29766, pI: 8.39, NX(S/T): 0
MWWFQQGLSFLPSALVIWTSAAFIIFS YITAVTLHHIDPALPYISDTGTVAPEKCLFGAMLNIA
AVLCIATIYVRYKQVHALSPEENVIIKLNKAGLVLGILSCLGLSIVANFQKTLFAAHVSGAV
LTFMGMSLYMFVQTILSYQMOPKIHGKQVFWIRLLLVWCGVSALSMLTCSSVLHSGNFGTDL
EQKLHWNPEDKGYVLHMITTAAEWSMSFSFSGFFLT YIRDFQKISLRVEANLHGLTLYDTAPC
PINNERTRLLSRDI

Important features:

Type II transmembrane domain:

amino acids 13-33

Other Transmembrane domains:

amino acids 54-73, 94-113, 160-180, 122-141

N-myristoylation sites.

amino acids 57-63, 95-101, 99-105, 124-130, 183-189

(57) Abstract: The present invention is directed to novel polypeptides and to nucleic acid molecules encoding those polypeptides. Also provided herein are vectors and host cells comprising those nucleic acid sequences, chimeric polypeptide molecules comprising the polypeptides of the present invention fused to heterologous polypeptide sequences, antibodies which bind to the polypeptides of the present invention and to methods for producing the polypeptides of the present invention.

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- (74) Agents: KRESNAK, Mark, T. et al.; Genentech, Inc., MS49, 1 DNA Way, South San Francisco, CA 94080-4990 (US).

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Published:

- with international search report
- with (an) indication(s) in relation to deposited biological material furnished under Rule 13bis separately from the description

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/23328

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/12 C07K14/47 C07K14/705 G01N33/53 C12N15/62
C07K16/18

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N C07K G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 25825 A (BOUGUELERET LYDIE ; GENSET SA (FR); DUCLERT AYMERIC (FR); DUMAS MIL) 27 May 1999 (1999-05-27) the whole document	1-20
X	WO 99 24836 A (ENDRESS GREGORY A ; HUMAN GENOME SCIENCES INC (US); FENG PING (US);) 20 May 1999 (1999-05-20) the whole document	1-20
A	EP 0 834 563 A (SMITHKLINE BEECHAM CORP) 8 April 1998 (1998-04-08) the whole document	
A	WO 97 07198 A (GENETICS INST) 27 February 1997 (1997-02-27) the whole document	

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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"B" document member of the same patent family

Date of the actual completion of the international search

24 January 2001

Date of mailing of the international search report

23.04.01

Name and mailing address of the ISA

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Authorized officer

Smalt, R

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/23328

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	YOKOYAMA-KOBAYASHI M ET AL: "A signal sequence detection system using secreted protease activity as an indicator" GENE,NL,ELSEVIER BIOMEDICAL PRESS. AMSTERDAM, vol. 163, no. 2, 3 October 1995 (1995-10-03), pages 193-196, XP004041983 ISSN: 0378-1119 the whole document ---	
A	KLEIN R D ET AL: "SELECTION FOR GENES ENCODING SECRETED PROTEINS AND RECEPTORS" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA,US,NATIONAL ACADEMY OF SCIENCE. WASHINGTON, vol. 93, no. 14, 9 July 1996 (1996-07-09), pages 7108-7113, XP002061411 ISSN: 0027-8424 the whole document ---	
P,X, L	WO 99 63088 A (BAKER KEVIN ;CHEN JIAN (US); GENENTECH INC (US); YUAN JEAN (US); G) 9 December 1999 (1999-12-09) L: priority. the whole document ---	1-20
P,X	WO 99 46287 A (GENETICS INST) 16 September 1999 (1999-09-16) the whole document ---	1-20
E,L	WO 00 73454 A (GENENTECH INC) 7 December 2000 (2000-12-07) the whole document -----	1-20

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 00/23328

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 35-38, in as far as they pertain to in vivo methods, are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☒ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Claims 1-20 (all partially).

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Present claims 21-38 relate to a polypeptide, designated F or PR01, which is not characterized in the description. This gives rise to a lack of clarity within the meaning of Article 6 PCT to such an extent as to render a meaningful search of the claims in respect of said protein impossible. Consequently, the search has been limited to the remaining parts of the claims.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: Invention 1: 1-20, all partially

PRO180: nucleic acid with seq.ID.1, encoding a polypeptide comprising the amino acid sequence as represented in seq.ID.2 or a nucleic acid having at least 80% homology thereto, vector comprising said nucleic acid, host cell comprising said vector, process for producing the protein of seq.ID.2 using said host, the isolated protein or one having at least 80% homology thereto, a chimeric protein of said peptide fused to a heterologous sequence, isolated extracellular domain of said protein or said protein lacking its signal peptide, and an antibody against said polypeptide.

2. Claims: Inventions 2-76: claims 1-20, all partially

Subject matter as defined for invention 1, but related to the respective nucleic acid/polypeptide sequences of:

2. PRO218, represented by seq.ID.s 3 and 4,
3. PRO263, represented by seq.ID.s 5 and 6,
4. PRO295, as represented by seq.ID's 7 and 8,
5. PRO874, as represented by seq.ID's 9 and 10,
6. PRO300, as represented by seq.ID's 11 and 12,
7. PRO1864, as represented by seq.ID's 13 and 14,
8. PRO1282, as represented by seq.ID's 15 and 16,
9. PRO1063, as represented by seq.ID's 17 and 18,
10. PRO1773, as represented by seq.ID's 19 and 20,
11. PRO1013, as represented by seq.ID's 21 and 22,
12. PRO937, as represented by seq.ID's 23 and 24,
13. PRO842, as represented by seq.ID's 25 and 26,
14. PRO1180, as represented by seq.ID's 27 and 28,
15. PRO831, as represented by seq.ID's 29 and 30,
16. PRO1115, as represented by seq.ID's 31 and 32,
17. PRO1277, as represented by seq.ID's 33 and 34,
18. PRO1074, as represented by seq.ID's 35 and 36,
19. PRO1344, as represented by seq.ID's 37 and 38,
20. PRO1136, as represented by seq.ID's 39 and 40,
21. PRO1109, as represented by seq.ID's 41 and 42,
22. PRO1003, as represented by seq.ID's 43 and 44,
23. PRO1138, as represented by seq.ID's 45 and 46,
24. PRO994, as represented by seq.ID's 47 and 48,
25. PRO1069, as represented by seq.ID's 49 and 50,
26. PRO1411, as represented by seq.ID's 51 and 52,
27. PRO1129, as represented by seq.ID's 53 and 54,
28. PRO1027, as represented by seq.ID's 55 and 56,
29. PRO1106, as represented by seq.ID's 57 and 58,
30. PRO1291, as represented by seq.ID's 59 and 60,
31. PRO3573, as represented by seq.ID's 61 and 62,
32. PRO3566, as represented by seq.ID's 63 and 64,
33. PRO1098, as represented by seq.ID's 65 and 66,
34. PRO1158, as represented by seq.ID's 67 and 68,
35. PRO1124, as represented by seq.ID's 69 and 70,

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

- 36. PR01278, as represented by seq.ID's 71 and 72,
- 37. PR01335, as represented by seq.ID's 73 and 74,
- 38. PR01315, as represented by seq.ID's 75 and 76,
- 39. PR01357, as represented by seq.ID's 77 and 78,
- 40. PR01356, as represented by seq.ID's 79 and 80,
- 41. PR01557, as represented by seq.ID's 81 and 82,
- 42. PR01347, as represented by seq.ID's 83 and 84,
- 43. PR01302, as represented by seq.ID's 85 and 86,
- 44. PR01270, as represented by seq.ID's 87 and 88,

3. Claim : Invention

- 45. PR01268, as represented by seq.ID's 89 and 90,
- 46. PR01327, as represented by seq.ID's 91 and 92,
- 47. PR01328, as represented by seq.ID's 93 and 94,
- 48. PR01329, represented by seq.ID's 95 and 96,
- 49. PR01340, as represented by seq.ID's 97 and 98,
- 50. PR01342, as represented by seq.ID's 99 and 100,
- 51. PR03579, as represented by seq.ID's 101 and 102,
- 52. PR01472, as represented by seq.ID's 103 and 104,
- 53. PR01461, as represented by seq.ID's 105 and 106,
- 54. PR01568, as represented by seq.ID's 107 and 108,
- 55. PR01753, as represented by seq.ID's 109 and 110,
- 56. PR01570, as represented by seq.ID's 111 and 112,
- 57. PR01446, as represented by seq.ID's 113 and 114,
- 58. PR01565, as represented by seq.ID's 115 and 116,
- 59. PR01572, as represented by seq.ID's 117 and 118,
- 60. PR01573, as represented by seq.ID's 119 and 120,
- 61. PR01550, as represented by seq.ID's 121 and 122,
- 62. PR01693, as represented by seq.ID's 123 and 124,
- 63. PR01566, as represented by seq.ID's 125 and 126,
- 64. PR01774, as represented by seq.ID's 127 and 128,
- 65. PR01928, as represented by seq.ID's 129 and 130,
- 66. PR01865, as represented by seq.ID's 131 and 132,
- 67. PR01925, as represented by seq.ID's 133 and 134,
- 68. PR01926, as represented by seq.ID's 135 and 136,
- 69. PR01801, as represented by seq.ID's 137 and 138,
- 70. PR04405, as represented by seq.ID's 139 and 140,
- 71. PR03435, as represented by seq.ID's 141 and 142,
- 72. PR03543, as represented by seq.ID's 143 and 144,
- 73. PR03443, as represented by seq.ID's 145 and 146,
- 74. PR03442, as represented by seq.ID's 147 and 148,
- 75. PR05990, as represented by seq.ID's 149 and 150, and
- 76. PR04342, as represented by seq.ID's 151 and 152.

For the sake of conciseness, the first subject matter is explicitly defined, the subject matter of inventions 2-76 are defined by analogy thereto.

4. Claims: Invention 77: claims 1-3,5-12,14-38, all partially

PR010272: nucleic acid with seq.ID.155, encoding a polypeptide comprising the amino acid sequence as

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

represented in seq.ID.156 or a nucleic acid having at least 80% homology thereto, vector comprising said nucleic acid, host cell comprising said vector, process for producing the protein of seq.ID.156 using said host, the isolated protein or one having at least 80% homology thereto, a chimeric protein of said peptide fused to a heterologous sequence, isolated extracellular domain of said protein or said protein lacking its signal peptide, and an antibody against said polypeptide. Also a method of detecting PR010272 using its interaction with PR05801 (seq.ID.158), method for linking a bioactive molecule to a cell expressing PR010272 through the use of PR05801, and method of modulating at least one activity of said cell thereby.

5. Claims: Invention 78: claims 1-3,5-12,14-38, all partially

PR020110: nucleic acid with seq.ID.159, encoding a polypeptide comprising the amino acid sequence as represented in seq.ID.160 or a nucleic acid having at least 80% homology thereto, vector comprising said nucleic acid, host cell comprising said vector, process for producing the protein of seq.ID.160 using said host, the isolated protein or one having at least 80% homology thereto, a chimeric protein of said peptide fused to a heterologous sequence, isolated extracellular domain of said protein or said protein lacking its signal peptide, and an antibody against said polypeptide. Also a method of detecting PR020110 using its interaction with PR020040 (seq.ID.162), method for linking a bioactive molecule to a cell expressing PR020110 through the use of PR020040, and method of modulating at least one activity of said cell thereby.

6. Claims: Invention 79: claims 1-3,5-12,14-38, all partially

PR010096: nucleic acid with seq.ID.153, encoding a polypeptide comprising the amino acid sequence as represented in seq.ID.154 or a nucleic acid having at least 80% homology thereto, vector comprising said nucleic acid, host cell comprising said vector, process for producing the protein of seq.ID.154 using said host, the isolated protein or one having at least 80% homology thereto, a chimeric protein of said peptide fused to a heterologous sequence, isolated extracellular domain of said protein or said protein lacking its signal peptide, and an antibody against said polypeptide. Also a method of detecting PR010096 using its interaction with PR020233 (seq.ID.164), method for linking a bioactive molecule to a cell expressing PR010096 through the use of PR020233, and method of modulating at least one activity of said cell thereby.

7. Claims: Invention 80: claims 1-3,5-12,14-38, all partially

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

PRO19670: nucleic acid with seq.ID.165, encoding a polypeptide comprising the amino acid sequence as represented in seq.ID.166 or a nucleic acid having at least 80% homology thereto, vector comprising said nucleic acid, host cell comprising said vector, process for producing the protein of seq.ID.166 using said host, the isolated protein or one having at least 80% homology thereto, a chimeric protein of said peptide fused to a heterologous sequence, isolated extracellular domain of said protein or said protein lacking its signal peptide, and an antibody against said polypeptide. Also a method of detecting PRO19670 using its interaction with PRO1890 (seq.ID.168), method for linking a bioactive molecule to a cell expressing PRO19670 through the use of PRO1890, and method of modulating at least one activity of said cell thereby.

8. Claims: Invention 81: claims 1-3,5-12,14-38, all partially

PRO5801: nucleic acid with seq.ID.157, encoding a polypeptide comprising the amino acid sequence as represented in seq.ID.158 or a nucleic acid having at least 80% homology thereto, vector comprising said nucleic acid, host cell comprising said vector, process for producing the protein of seq.ID.158 using said host, the isolated protein or one having at least 80% homology thereto, a chimeric protein of said peptide fused to a heterologous sequence, isolated extracellular domain of said protein or said protein lacking its signal peptide, and an antibody against said polypeptide. Also a method of detecting PRO5801 using its interaction with PRO10272 (seq.ID.156), method for linking a bioactive molecule to a cell expressing PRO5801 through the use of PRO10272, and method of modulating at least one activity of said cell thereby.

9. Claims: Invention 82: claims 1-3,5-12,14-38, all partially

PRO20040: nucleic acid with seq.ID.161, encoding a polypeptide comprising the amino acid sequence as represented in seq.ID.162 or a nucleic acid having at least 80% homology thereto, vector comprising said nucleic acid, host cell comprising said vector, process for producing the protein of seq.ID.162 using said host, the isolated protein or one having at least 80% homology thereto, a chimeric protein of said peptide fused to a heterologous sequence, isolated extracellular domain of said protein or said protein lacking its signal peptide, and an antibody against said polypeptide. Also a method of detecting PRO20040 using its interaction with PRO20110 (seq.ID.160), method for linking a bioactive molecule to a cell expressing PRO20040 through the use of PRO20110, and method of modulating at least one activity of said cell thereby.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

10. Claims: Invention 83: claims 1-3,5-12,14-38, all partially

PR020233: nucleic acid with seq.ID.163, encoding a polypeptide comprising the amino acid sequence as represented in seq.ID.164 or a nucleic acid having at least 80% homology thereto, vector comprising said nucleic acid, host cell comprising said vector, process for producing the protein of seq.ID.164 using said host, the isolated protein or one having at least 80% homology thereto, a chimeric protein of said peptide fused to a heterologous sequence, isolated extracellular domain of said protein or said protein lacking its signal peptide, and an antibody against said polypeptide. Also a method of detecting PR020233 using its interaction with PR010096 (seq.ID.154), method for linking a bioactive molecule to a cell expressing PR020233 through the use of PR010096, and method of modulating at least one activity of said cell thereby.

11. Claims: Invention 84: claims 1-3,5-12,14-38, all partially

PR01890: nucleic acid with seq.ID.167, encoding a polypeptide comprising the amino acid sequence as represented in seq.ID.168 or a nucleic acid having at least 80% homology thereto, vector comprising said nucleic acid, host cell comprising said vector, process for producing the protein of seq.ID.168 using said host, the isolated protein or one having at least 80% homology thereto, a chimeric protein of said peptide fused to a heterologous sequence, isolated extracellular domain of said protein or said protein lacking its signal peptide, and an antibody against said polypeptide. Also a method of detecting PR01890 using its interaction with PR019679 (seq.ID.166), method for linking a bioactive molecule to a cell expressing PR01890 through the use of PR019679, and method of modulating at least one activity of said cell thereby.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/23328

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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